Important Advances in Clinical Medicine

Epitomes of Progress—Allergy

The Scientific Board of the California Medical Association presents the following inventory of items of progress in Allergy. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in Allergy which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Allergy of the California Medical Association and the summaries were prepared under its direction.

**Reprint requests to: Division of Scientific and Educational Activities
California Medical Association, 731 Market St., San Francisco, CA 94103**

Immunological Defenses in Cancer

THERE ARE MANY SIMILARITIES between the human body's defenses against intracellular infections (tuberculosis, toxoplasmosis, fungi and many viruses) and its defenses against cancer. The two types of immunological defense against infection and cancer are cellular and humerol.

Cellular immunity depends on specifically sensitized lymphocytes which can kill the sensitizing cancer cells specifically. After combining with the antigenic tumor cell, lymphocytes may (1) kill by contact, (2) release factors (lymphokines) which kill cells nonspecifically and (3) induce production of activated macrophages. Once macrophages are activated, they can kill intracellular organisms or tumor cells nonspecifically. Activated macrophages are important in protection from diseases such as toxoplasmosis and tuberculosis, as well as cancer. Macrophages may be activated by a variety of factors such as bacille Calmette Guérin (BCG), chronic toxoplasmosis and endotoxin. Several studies indicate that BCG vaccination in large numbers of children may decrease future rates of mortality from leukemia.

Recent studies indicate that most cancer has tumor specific antigens. Release of small quantities of these antigens, as from slow growing cancers, may induce both circulating immunoglobulin antibodies and cytotoxic lymphocytes. If a large quantity of tumor antigen is released, the sites of antibody production may be overpowered and immunological paralysis ensues. In these cases the cancer may continue to grow rapidly. Soluble tumor antigen may also combine with cytoxic lymphocytes to neutralize them, which is a frequent occurrence in late cancer.

If the immunological response to the tumor antigen is principally circulating noncomplement binding immunoglobulin antibodies, these may coat the surface of the tumor cells and block the cytotoxic effects from any subsequent antitumor lymphocytes. Development of cancer immunity might best be obtained by methods which minimize the production of noncomplement binding immunoglobulin antibodies and encourage the delayed immune system to produce specific antitumor lymphocytes, and possibly to produce complement binding antibodies which may also kill cancer cells.

As in many types of infection (that is, intracellular) the tumor may persist if it is in a portion